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CALIFORNIA STATE COLLEGE
SAN BERNARDINO

SUGAR - THE EFFECTS IT HAS ON CLASSROOM BEHAVIOR

A Project Proposal Submitted to
The Faculty of the School of Education
In Partial Fulfillment of the Requirements of the Degree of
Master of Arts

In

Education: Secondary Option

By

Lou Anderholt, M.A.
San Bernardino, California

1982

APPROVED BY:



Advisor

Committee Member

California State College

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I. INTRODUCTION

Discipline has long been a problem in the schools. According to school administrators, negative behavior in schools has increased (Kindsvatter 1981). Teachers and administrators expend a great amount of time on students with behavior problems. Behavior problems in a large and sometimes crowded classroom can reduce a substantial amount of time from learning for all students. Perhaps there are new ways to eliminate behavior problems in the classroom, leaving more time for learning.

Is it possible that nutrition can affect a child's behavior, and if so, could sugar be one of the 'villians' causing that disruptive behavior? Some researchers believe the answer to this question is yes. The purpose of this paper is to discover in what ways diet could be a factor which causes negative and unwanted behavior in the classroom.

It is unfortunate that few parents, teachers, or administrators are aware that there have been recent discoveries linking behavior to diet, and that diet is rarely considered a cause of learning problems (Stronck 1980). Activity and behavior changes in children related to foods have been reported repeatedly in the literature on nutrition for the past 60 years. Foods considered to be highly allergenic such as milk, wheat, egg, cocoa, corn, and sugar are also reported to heighten activity in some children (Rapp 1978).

Studies and research have been conducted to find out if certain foods, one of these being sugar, can affect the behavior of children. One study on children and rats suggests that behavior problems among teenagers can be corrected simply through proper nutrition (Stronck 1980).

II. STATEMENT OF THE PROBLEM

The purpose of this paper was to discuss the studies and research which correlate sugar with discipline problems. If it is possible that sugar in the body, in excess, interferes with classroom learning in the form of behavior problems, then perhaps diet control will be a means to an end in controlling behavior that is disruptive to the learning process. The premise of this paper is that there is a significant relationship between behavior and the effects sugar has on the body.

The following terms and definitions will be utilized in this paper (Dufty 1975).

- Nutrition: The foods one eats and how the body uses the foods
- Diet: Includes all of the foods consumed each day
- Behavior: The way a person acts, either positively or negatively
- Hyperactive: The more than normal or more than usual amount of activity generally seen with children of the same age

III. REVIEW OF RELATED LITERATURE

One of the basic problems in educating the general public towards better nutrition is the public's lack of knowledge of the forms and names of sugar. There are five types of sugars: 1) sucrose, 2) fructose, 3) maltose, 4) lactose, and 5) glucose (also called dextrose). Sucrose is ordinary table sugar. Fructose is found naturally in fruits, honey, and molasses, while maltose is found in corn syrup and also in malt. Lactose is a sugar found only in milk; and glucose is found in fruits, honey, and certain vegetables. However, glucose also exists in our own blood, as it is derived from starches and other sugars (Hamilton 1975).

Processed foods contain "hidden" sugar which includes white or brown sugar, corn syrup, maple syrup, honey, molasses, dextrose, fructose, glucose, lactose, maltose, and corn sweeteners. A certain amount of glucose, the simplest of sugars, is needed in the blood for the whole body to function efficiently. Sucrose, ordinary table sugar, which is very close to glucose in its chemical composition, needs little digestion to be absorbed by the body. Sucrose passes directly into the intestines, where it becomes "predigested" glucose and, in turn, is absorbed into the blood. Consequently, foods, such as cookies, candy, cakes, and carbonated beverages that have a high sugar content can cause the glucose level to rise quickly.

There is a relationship between the level of blood sugar and brain metabolism. Glucose is fuel for the brain and effects the cerebral tissue (Walker 1975). People need to eat the right foods so that the brain can think efficiently. When glucose first reaches the brain, an "up" feeling is registered. This is usually shown by a surge of energy and is commonly known as the "quick energy" feeling.

When there is too little glucose in the blood, or when the blood sugar level drops, behavior is sometimes effected. Mood swings are often noticed in many people. A person swings from a feeling of energy plus, to that of depression, restlessness, and sometimes anxiety and tiredness.

Physicians have researched the idea of behavior and learning being influenced by blood sugar levels.

Today, pioneers of orthomolecular psychiatry such as Dr. A. Hoffer, Dr. Allan Cott, and Dr. A. Cherkin, as well as Dr. Linus Pauling have confirmed that mental illness is a myth and that emotional disturbances can be merely the first symptom of the obvious inability of the human system to handle the stress of sugar dependency. (Dufty 1975)

Fifty years ago if you wanted your food to taste sweet, you simply added granulated sugar to it. You controlled the amount of sugar you and your family ate. But modern food processing has drastically changed the way we consume sugar. A look at product ingredients on supermarket shelves will demonstrate how difficult it is to find any type of prepared food that does not contain sugar. It's not only used in sweet baked goods, desserts and soft drinks, but also in sauces, many baby foods, almost all fruit drinks, salad dressings, canned and dehydrated soups, pot pies, frozen vegetables, most canned and frozen fruits, fruit yogurt and breakfast cereals. For example, if you eat a hot dog, you will find sugar in the meat, catsup, mustard, relish, and even in the bun!

Twenty-four percent of the calories we consume come from sugar, three percent comes from fruits and vegetables, three percent from the lactose in milk and dairy products, and a whopping eighteen percent is consumed from sugar that is added to our food. Whether in packaged salad dressing or in a packaged cupcake, sugar is the leading food additive today (Wicklander 1982).

The average person in America consumes approximately two pounds of sugar per week (Schoenberg 1976). This is about $\frac{1}{4}$ pound per day of which seventy percent is "hidden" in foods (Brody 1977). According to a study completed by the Michigan Agricultural Experiment Station Researches, which examined sugar consumption per day and the percent of calories from sugar by 5 - 12 year old children, results indicated that children (in the sample) aged 5 - 6 consumed a total of 1941 calories, 26 percent of which came from sugar. In addition, children in the 11 - 12 year old age sample group consumed 2369 calories per day, 24 percent of which were derived from sugar (Morgan 1981).

Based on the research to be cited below, what is generally considered a well-rounded or completely nutritious diet may, in some instances, actually contribute to behavior disorders in children. There is also evidence that the foods frequently served in the public schools in lunches, snacks, treats, and as "reinforcers", may contribute to behavior problems as well. Most of these items have a high sugar content.

The fact that there is a relationship between behavior disorders in children and the diet which they follow is undisputable. For many years, there has been evidence in the literature on nutrition which indicates that a person's diet can have a profound effect upon his behavior (Cheraskin and Ringsdor 1973).

A poor diet or bad nutrition can affect a child's behavior. According to Doctors Benjamin and Helen Feingold who developed a special diet to control behavior, diet can affect behavior, attention span, hyperactivity and school performance. The Feingolds have also observed that sugar causes hyperactivity in some individuals. Simple sugars included not only refined sugar cane, but also beet sugar, brown sugar, molasses and honey.

The Feingolds prescribed a diet that omits two groups of foods that should be avoided. Sugar is included in one group. They predict that their recommended diet has 60 to 70 percent chance of controlling behavior in a hyperactive child. Implementing a diet is difficult because 90 percent of processed foods contain artificial colors and flavors, with sugar additives. Sugar constitutes approximately 18 percent of the average American's diet. Also, it may take as little as 36 hours or as long as 40 days to see a change in a person's behavior following this diet (Stronck 1980).

E. Cheraskin, a pioneer of orthomolecular psychiatry, believes that foods are the keys to emotional health (Cheraskin 1974). Another researcher, E. Switzer, has written that most people have mood swings when they are inadequately fed and that either too much or too little glucose has definite side effects on many organs of the body including the kidneys, arteries, and certainly, the brain. This accounts for mood swings which are often seen as changes in a person's behavior (Switzer 1973).

Many researches have done studies trying to discover whether or not diet does or can effect behavior. In one such study, a 13-year-old girl was hospitalized by her pediatrician because she had erratic, irritable behavior. The girl was put on a high protein, sugar-free diet plus vitamins. After a few days her behavior was dramatically changed, according to her parents. She had previously been eating foods high in sugar content, as her parents reported finding candy wrappers in her room after her behavior explosions.

In another study, Doctor Hugh Powers, Jr., reported that he tested 260 children and young adults for normal blood sugar levels and then treated each with a special diet which limited carbohydrates, excluded sugar, coffee, tea, and cola, and was high in protein and vitamin supplements. The information and findings for three of these cases follow. In the first case, the mother of an 8½-year-old boy reported that her son was often sleepy, negative, fatigued, or hyperactive. After seven months on Dr. Power's diet, the mother reported that her son was happier, had a greater sense of humor, and that his reading level in school improved noticeably. In the second case, a 15-year-old girl had similar symptoms: Hyperactivity, fatigue, sleepiness and negativeness. After one year of treatment, she gained three years in her reading comprehension, became bright, cheerful and outgoing. In the third case, a 12-year-old boy who was very hyperactive showed a decrease in hyperactivity in only three months of treatment. Dr. Powers stated that these were examples of cases he worked with that encouraged him to regulate carbohydrate intake and blood sugar in children brought to him with educational and behavioral difficulties (Power 1974).

Another research, W.G. Crook, M.D., studied the relationship of diet to hyperactivity and emotional, behavioral, and learning problems. His patients were given a behavioral inventory, blood count, and food allergy test. Specific foods, including sugar, were eliminated from the diet. The results showed that of 136 children, sugar caused hyperactivity in 77 of 136 children (Crook 1980).

Further research by Dan O'Banion involved testing an 8-year-old autistic boy for his reactions to certain foods. The results showed that sugar, among other foods were instrumental in producing behavior disorders with this child (O'Banion 1978).

Barbara Reed, child probation officer of the Municipal Court of Cuyahoga Falls, Ohio, discovered that young offenders consumed great quantities of sugar, soft drinks, and starch. She recommended sugar-free, low-starch, no-junk food diets. Those who followed her recommendations were never back in court. One judge was so amazed at the changes in these offenders that he began to order defendants to eat nutritional diets (Phlegar 1979).

At the University of Montreal, the Department of Nutrition and Dietetics conducted a year-long experiment with an amateur hockey team. The team was divided into two groups. One group was free to eat candy and chocolate bars. The second group was to eat sugar-free foods. The sugar eaters' play deteriorated as more and more sugar and sugar-related products were consumed. This group had weakened metabolism. Its members were physically inferior to those in the sugar-free group. Concentration, resistance to illness, and overall ability decreased, even with small amounts of sugar. The sugar-free group's performance improved as the year progressed (Phlegar 1979).

In Roanoke, Virginia, an attempt was made in 1976, to move Halloween from Saturday night back to Friday night so that students would have two days to get the sugar out of their systems. One council member, who is also a teacher, observed that the candy in the children's bloodstream made them uncontrollable in the classroom (Phlegar 1979).

Alan C. Levin, director of the New York Institute for Child Development, says, that his office was chaotic the day after Halloween. His patients, who were hyperactive and learning disabled, could not participate in the therapy sessions after they had eaten so much candy. Their attention spans were limited; they were almost unmanageable (Phlegar 1979).

H.J. Roberts, M.D. reports the results of a study involving 29 patients, 24 children and five adults, who had severe reading problems. Twenty-one of the subjects were placed on a strict diet that eliminated table sugar and foods containing simple sugar. All of the subjects demonstrated improvement in reading, and 12 of these improved in other school subjects as well (Gearheart 1973).

Dr. Lendon Smith, a pediatrician from Oregon, claims that children cannot handle extra insulin, which is produced by the body as a result of the extra sugar in the bloodstream. This results in a sudden drop in the sugar level in the bloodstream. The resulting sudden drop triggers the adrenal glands to pour out adrenaline whose function is to release sugar from the liver and thus restore the blood sugar level. Smith suggests that the by-product of the increase in adrenaline is frantic, purposeless muscular activity (Smith 1976).

Dr. Carlton Fredericks, an internationally known nutritionist, supports the view that no form of sugar is a good form . . . for man has no physiological need for sugar . . . ancient man was filled with sugar though he had no sugar bowl. We get enough sugar naturally through foods so that the addition of extra sugar is not necessary. Fredericks also supports the view that a law should be passed to forbid the sale of sweet foods and drinks within any school (Fredericks 1976).

The above research should persuade educators and parents or concerned adults to do something about the diet of students with behavior problems. Many of these students end up in the principal's office, in alternative schools, in special education classes, or in jail. For some of these students, the cause of disruptive behavior is the food they are eating. If we changed their diets, their behavior and scholastic achievement might improve. All students and their parents should be made aware of the importance of foods for physical and mental health. Special attention should be given to students in special education, to behavior problems, and to those students with physical problems. It should be emphasized that it is the students' and parents' responsibilities to do something about changing the diet.

Crook sums up this subject with the following statement:

So it seems to me that many of the children who were studied by these researchers remained hyperactive because they were continuing to eat foods to which they were allergic. I am absolutely certain that what a child eats can make him dull, stupid, and hyperactive. (Crook 1980).

IV. STATEMENT OF OBJECTIVES

The aim of this project is to provide parents and teachers with recent and appropriate information in the format of an educational handbook from which they can gain an understanding of nutrition, balanced diets, and the relationship between sugar and behavior problems in the schools.

Information in the form of recent research findings, case histories, observations and opinions of nutrition-oriented medical doctors and psychiatrists provide the basis for information discussed in this handbook which is aimed at educating and raising the awareness levels of teachers and parents to these existing problems.

This handbook provides an opportunity for teachers and parents to gain further insight into the relationship between sugar and inappropriate behavior as displayed by children who are affected by large quantities of sugar in their diet. In addition, the handbook provides information for parents and teachers which can be utilized in educating themselves and their children in the problem of consuming products which contain large amounts of sugar and ways of avoiding such foods through maintenance of a balanced and well planned diet.

V. DESIGN OF PROJECT

This project develops a handbook that gives recent research information to parents and teachers, and includes ways to improve diets.

The handbook covers the following areas:

THE HOW AND WHY OF THIS HANDBOOK?

SUGAR FACTS

FACT AND FALLACY

SUGAR SYMPTOMS - ITS INFLUENCE ON BEHAVIOR

WHAT'S ON A LABEL

HIDDEN SUGAR IN VARIOUS FOODS

BALANCED DIET/GOOD NUTRITION

A TYPICAL BREAKFAST

LET'S REDUCE (SUGAR)

SUGGESTED FURTHER READINGS AND ACTIVITIES

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VI. LIMITATIONS

This is a relatively new area of research, limited at this time to research by medical doctors, pediatricians, psychiatrists, and nutritionists. Therefore, the quantity of literature on this subject is limited. The material that has been acquired for use in this project is representative of some of the best and most recent research on this topic.

Many of the research studies cited in this paper have excluded more than just sugar from a test diet, increasing at the same time other foods and vitamin supplements. Thus, sugar becomes one of many variables. For this reason, it is difficult to conclude that the elimination of sugar from a diet was the only factor causing unwanted behavior.

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SWEET TALK

A GUIDE TO CONTROLLING BEHAVIOR THROUGH NUTRITION

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THE HOW AND WHY OF THIS HANDBOOK

This handbook is designed to inform parents and teachers of recent research findings that indicate that sugar affects a child's behavior. It is important that classroom teachers and other school personnel be aware of diet-related conditions that can contribute to behavior problems in children. It is suggested that a more controlled and better diet can improve a child's behavior and learning simply through nutrition.

1. Read the handbook carefully.
2. Think about your own children or students in your class. Does this information tell you anything about them?
3. Discuss this information with your children or students.
4. TAKE ACTION . . .

SUGAR FACTS

Sugar is habit forming. You can be addicted to sugar just as your body can be addicted to alcohol, drugs, or cigarettes.

Sugar contributes to mental and physical health problems: Dental cavities, overweight, diabetes, and heart illnesses.

Refined sugar (sucrose), as you would find in desserts, candy, and the sugar bowl has no nutritive value.

There is no dietary requirement for glucose or any other sugar form.

Sucrose gives the body caloric energy which is simply energy to function on without any nutrients.

Sucrose is not digested in the mouth or stomach, but is absorbed directly into the blood from the intestines.

It takes from one to four minutes before sugar intake is reflected in higher blood sugar levels.

Glucose is manufactured in the body, so the addition of sucrose is not necessary.

Sugar is stored as glucose in the liver. When the liver is full, it returns to the blood as fatty acid and is stored in other parts of the body as fat.

Vitamin B-Complex is needed by the body to burn up glucose.

The average American consumes two pounds of sugar per week.

70% of all processed foods contain sugar as an additive for flavor, a preservative, or filler.

Approximately 25% of the sugar consumed is through carbonated or non-carbonated soft drinks.

The main ingredient in most soft drinks, after water, is sugar.

Some popular breakfast cereals are more than half sugar.

The quantity of sugar that causes hyperactivity will vary from child to child.

"Made from Natural Ingredients" on a label is misleading - sugar is a natural ingredient.

"No Sugar Added" is misleading on a label as sugar is often grouped as a carbohydrate such as in instant breakfast drinks.

Sugar Names:

Glucose (also called dextrose)

- found in fruits and vegetables
- always present in our bloodstream
- manufactured by the body
- often called blood sugar

Fructose - fruit sugar

Maltose - malt sugar

Lactose - milk sugar

Sucrose - refined sugar made from sugar cane and sugar beet.

Sugar Forms:

White or brown sugar, corn syrup, maple syrup, honey, molasses and corn sweeteners.

FACT AND FALLACY

**** SUGAR HAS NUTRITIVE VALUE.

FACT: Sugar is refined by a chemical process which removes all of the nutrients and fiber contained in sugar beets or cane.

**** YOUR BODY DOES NOT GET ENOUGH SUGAR NATURALLY, SO IT REQUIRES SUPPLEMENTS SUCH AS GRANULATED SUGAR, HONEY, MOLASSES, CORN SYRUPS, ETC.

FACT: Your body can make glucose from fat, protein, and the different types of naturally occurring sugars in food.

**** SUGAR HAS NO ADVERSE EFFECTS ON YOUR BODY.

FACT: Sugar is linked to dental cavities, overweight, diabetes, and heart illnesses.

**** BROWN SUGAR IS BETTER FOR YOU THAN WHITE SUGAR.

FACT: Brown sugar is made by the same process as white sugar.

**** IF SUGAR IS NOT LISTED FIRST ON A LABEL, IT IS NOT THE MOST COMMON INGREDIENT IN THAT PRODUCT.

FACT: Be aware that the different types of sugar may be listed separately. The total quantity of sweeteners, when added together, may be the major ingredient in the product.

Have you heard any of these statements before? All are untrue! It is through misleading marketing concepts and lack of information that the public believes these general misconceptions.

THE SUGAR SYMPTOMS

Its Influence on Behavior

When there is too little glucose in the blood, or when the blood sugar level drops, behavior is sometimes effected. Mood swings are often noticed in many people, as a person goes from a feeling of energy plus or hyperactivity, to feelings of depression, restlessness, anxiety, sleepiness, laziness, irritability, or fatigue.

For example, your body is functioning normally after a good night's rest. For breakfast you quickly mix a glass of an instant breakfast drink and eat a piece of toast with jelly. Both foods are high in sugar. When the sugar enters the bloodstream and reaches the brain, an "up" feeling, or surge of energy is felt. This is often called "quick energy." The body then releases insulin to get the blood sugar level down. Sometimes more insulin is released than is needed causing blood sugar levels to go below normal. Later, when the blood sugar level is down, your system craves more sugar, so for lunch, you have a soft drink and granola bar, both loaded with sugar.

Thus, your body's blood sugar level begins to swing from high to low when sugar is eaten continuously throughout the day. This puts a strain on the system and is often referred to as "Mood Swings". It's no wonder that your behavior is effected! The body is constantly in turmoil trying to regulate your blood sugar level.

WHAT'S ON A LABEL?

For your information, the label on a product lists the ingredients it contains according to their amount and in the order of their amount, with the largest ingredient listed first.

Below are samples from labels with their ingredients listed. Each sugar form or name has been underlined for quick reference.

CARNATION INSTANT HOT COCOA MIX

Sugar, whey nonfat dry milk, cocoa, corn syrup solids, partially hydrogenated vegetable oil, sodium caseinate, carboxmethyl cellulose, salt, artificial flavor.

COCA-COLA

Carbonated water, sugar, carmel color, phosphoric acid, natural flavorings, caffeine.

CARNATION INSTANT BREAKFAST

Nonfat dry milk, sugar, cocoa, sweet dairy whey, corn syrup solids, calcium caseinate, lactose, isolated soy protein, sodium caseinate, lecithin, magnesium hydroxide, carrageenan, artificial vanilla flavors, sodium ascorbate, etc.

QUAKER 100% NATURAL CEREAL (Raisins and Dates)

Rolled oats, brown sugar, rolled whole wheat, raisins, coconut oil, chopped dates, dried unsweetened coconut, almonds, nonfat dry milk, honey.

CAMPBELL'S CONDENSED TOMATO SOUP

Water, tomato paste, corn syrup, wheat flour, salt partially hydrogenated vegetable oils, natural flavoring, ascorbic acid and citric acid.

HIDDEN SUGAR IN VARIOUS FOODS

Study I

Often, consumers are lead to believe that cereals are packed with vitamins and nutrients. The sugar content is not advertised. Following is a list of various cereals with their sugar content.

<u>Percent Total Sugar (Dry Weight)</u>	<u>Cereal</u>
3.0	Cheerios
5.1	Special K
5.4	Corn Flakes
7.1	Rice Krispies
9.8	Product 19
12.8	Grape Nuts Flakes
13.0	Bran Flakes, 40%
16.5	Life
20.5	100% Bran
25.6	Frosted Mini Wheats
29.3	C.W. Post (Raisin)
30.0	Raisin Bran
34.5	Cocoa Puffs
37.7	Alphabits
39.9	Cap'n Crunch
40.6	Sugar Frosted Flakes
42.1	Cocoa Pebbles
42.8	Frosted Rice
43.3	Cocoa Krispies
48.4	Fruit Loops
54.0	Apple Jacks
55.5	Sugar Smacks

(Highlights In Home Economics 1980)

HIDDEN SUGAR IN VARIOUS FOODS

Study II

The ingredients on a label are listed in order by quantity.

The following chart is a list of various foods showing in what order sugar appears on its label.

<u>Product</u>	<u>Sugar Order On Label</u>
California Club Orange Drink	2, 3
Awake Imitation Orange Juice	1, 3
Tang Instant Breakfast Drink	1
Kool-Aid	1
Quaker Chewy Granola Bars	2, 4
Jello - Peach	1
Coca-Cola	2
Welch's Grape Juice (Sweetened)	2, 3
Del Monte Sweet Pickles	2
Steero Bouillon Cube	3
Jif Peanut Butter	2, 5
Old London Bread Crumbs	2, 3
Worcestershire Sauce	4
Lawry's Seasoned Salt	3
Nestle Quik Chocolate	1
Hi-C Drink Mix	1
Knudsen Lowfat Yogurt (Strawberry)	2, 4
Cinch White Cake Mix	4
Kellogg's Rice Krispies	2
Fisher Bisket Mix	4
Stater Bros. Vanilla Ice Cream	2, 3
Baker's Coconut	2
Kraft Miracle Whip	4

Product	Sugar Order On Label
C H B Spaghetti Sauce	3, 7
Hunt's Tomato Sauce	3
Lawry's Salad Dressing Mix (Bacon Flavor)	3
Nabisco 100% Bran Cereal	2
Campbell's Tomato Soup	3
Coffee Mate Non-Dairy Creamer	1
Knott's Berry Farm B-B-Q Sauce	3
Hunt's Ketchup	2
Sweet'N Low	1
Alpha Beta Chocolate Milk	2

BALANCED DIET/GOOD NUTRITION

The nutrient requirements of an individual may be met in many ways through a wide variety of foods and meal patterns. The United States Department of Agriculture has formulated a guided food plan, referred to as The Basic Four Food Groups. The food groups are: Milk, Meat, Bread-Cereal, and Vegetable-Fruit. Recommended foods and servings are included in this plan.

Milk Group:	Children under 9: 2-3 servings Children 9-12: 3 or more servings Teenagers: 4 or more servings
Sources:	Milk, cheese, yogurt, ice cream
Meat Group:	2 or more servings
Sources:	Beef, veal, pork, lamb, poultry, fish, eggs
Bread-Cereal Group:	4 or more servings
Sources:	Breads, cereals, rice, pasta, muffins, pancakes, waffles
Fruit-Vegetable Group:	4 or more servings
Sources:	Apples, oranges, pineapple, strawberries, (all fruits) Lettuce, zucchini, tomato, spinach, (all vegetables)

NOTE: THERE IS NO
REQUIREMENT FOR SUGAR!

A TYPICAL BREAKFAST

Which One Is You?

<u>Sugar Loaded</u>	<u>Sugar Low</u>
Sweet Roll Milk or Coffee	Eggs and Bacon Milk
Sugar Frosted Flakes Milk	Orange Juice (Unsweetened) Pancake (1 Tablespoon)
Instant Breakfast Drink	Corn Flakes Milk
Toast with Butter and Jelly Tang	Toast with Butter Banana Milk

Watch out for the so-called "Nutritious Breakfast".

Read the label!

LET'S REDUCE (SUGAR)

AT HOME

1. Read labels before buying.
2. Read labels of foods already in the home. The ingredients are listed on the label in the order of amount contained in the produce. The first ingredient listed is the main ingredient.
3. Cut down on obvious sugar foods, such as ice cream, soft drinks, candy, gum, processed cereals, cookies, etc.
4. Encourage children to eat fruits, vegetables, cheese and nuts for snacks.
5. Buy unsweetened beverages to drink.

When you must use a sweetener, use fructose. Fructose is sweeter than sucrose, so you can use less. Honey is a better choice than sucrose, because people tend to use less honey than sucrose. Select the least processed honeys, for processing tends to remove nutrients.

AT SCHOOL

1. Encourage schools to use more fresh fruits, vegetables, nuts, meat and cheese in school lunches.
2. Eliminate all sugar from the cafeteria.
3. Send your child's lunch with him.

SUGGESTED FURTHER READINGS AND ACTIVITIES

Sugar Blues. William Dufty, New York: Warner Book Company, 1975.

The Art of Feeding Children Well. Dr. Michael A. Weiner, New York: Warner Books, Inc., 1982.

Attend Nutrition Workshops or Inservice Meetings to inform teachers and school personnel about the latest nutrition information.

Contact your family doctor.

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CUT DOWN ON SUGAR FOR YOUR HEALTH'S
SAKE! AT LEAST KEEP THE SUGAR BOWL
OFF THE TABLE AND REMEMBER TO READ
LABELS. A NUTRITION-CONSCIOUS PUBLIC
WILL EVENTUALLY DEMAND AND USE
PRODUCTS WITHOUT SUCROSE. YOU, YOUR
CHILDREN, AND SOCIETY WILL BE
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IT'S NEVER TOO LATE TO IMPROVE ONE'S
DIET!

APPENDIX

SWEET TALK

SWEET TALK



A GUIDE TO
CONTROLLING BEHAVIOR THROUGH NUTRITION

TABLE OF CONTENTS

The How and Why of This Handbook	1
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The Sugar Symptoms	5
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SUGAR FACTS

Sugar is habit forming. You can be addicted to sugar just as your body can be addicted to alcohol, drugs, or cigarettes.

Sugar contributes to mental and physical health problems: Dental cavities, overweight, diabetes, and heart illnesses.

Refined sugar (sucrose), as you would find in desserts, candy, and the sugar bowl has no nutritive value.

There is no dietary requirement for glucose or any other sugar form.

Sucrose gives the body caloric energy which is simply energy to function on without any nutrients.

Sucrose is not digested in the mouth or stomach, but is absorbed directly into the blood from the intestines.

It takes from one to four minutes before sugar intake is reflected in higher blood sugar levels.

Glucose is manufactured in the body, so the addition of sucrose is not necessary.

Sugar is stored as glucose in the liver. When the liver is full, it returns to the blood as fatty acid and is stored in other parts of the body as fat.

Vitamin B-Complex is needed by the body to burn up glucose.

FACT AND FALLACY

*** SUGAR HAS NUTRITIVE VALUE.

ACT: Sugar is refined by a chemical process which removes all of the nutrients and fiber contained in sugar beets or cane.

*** YOUR BODY DOES NOT GET ENOUGH SUGAR NATURALLY, SO IT REQUIRES SUPPLEMENTS SUCH AS GRANULATED SUGAR, HONEY, MOLASSES, CORN SYRUPS, ETC.

ACT: Your body can make glucose from fat, protein, and the different types of naturally occurring sugars in food.

*** SUGAR HAS NO ADVERSE EFFECTS ON YOUR BODY.

ACT: Sugar is linked to dental cavities, overweight, diabetes, and heart illnesses.

*** BROWN SUGAR IS BETTER FOR YOU THAN WHITE SUGAR.

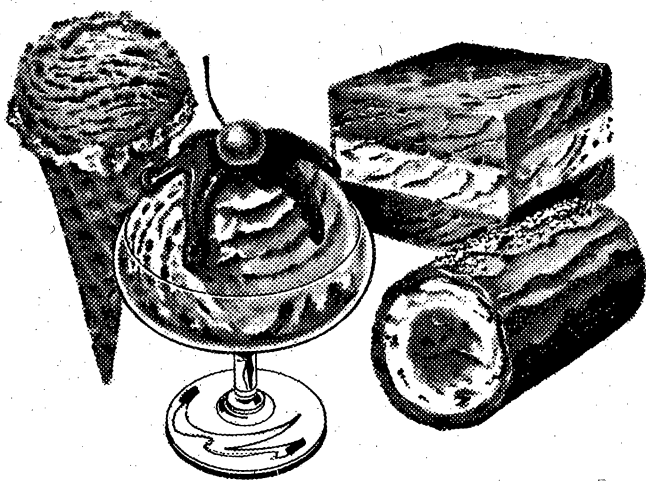
ACT: Brown sugar is made by the same process as white sugar.

*** IF SUGAR IS NOT LISTED FIRST ON A LABEL, IT IS NOT THE MOST COMMON INGREDIENT IN THAT PRODUCT.

ACT: Be aware that the different types of sugar may be listed separately. The total quantity of sweeteners, when added together, may be the major ingredient in the product.

Have you heard any of these statements before? All are untrue! It is through misleading marketing concepts and lack of information that the public believes these general misconceptions.

Thus, your body's blood sugar level begins to swing from high to low when sugar is eaten continuously throughout the day. This puts a strain on the system and is often referred to as "Mood Swings." It's no wonder that your behavior is effected! The body is constantly in turmoil trying to regulate your blood sugar level.



HIDDEN SUGAR IN VARIOUS FOODS

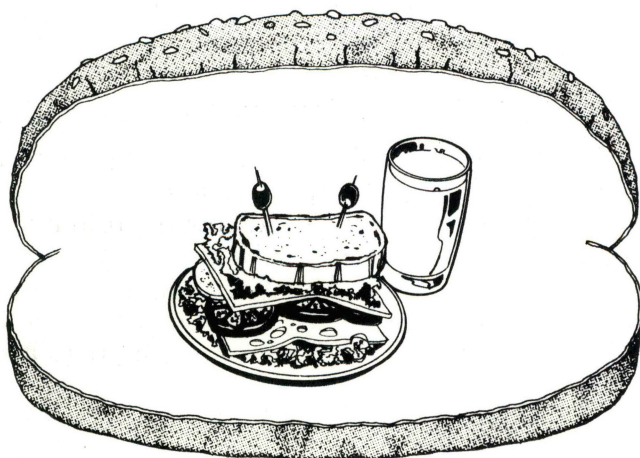
Study I

Often, consumers are lead to believe that cereals are packed with vitamins and nutrients. The sugar content is not advertised. Following is a list of various cereals with their sugar content.

<u>Percent Total Sugar (Dry Weight)</u>	<u>Cereal</u>
3.0	Cheerios
5.1	Special K
5.4	Corn Flakes
7.1	Rice Krispies
9.8	Product 19
12.8	Grape Nuts Flakes
13.0	Bran Flakes, 40%
16.5	Life
20.5	100% Bran
25.6	Frosted Mini Wheats
29.3	C.W. Post (Raisin)
30.0	Raisin Bran
34.5	Cocoa Puffs
37.7	Alphabits
39.9	Cap'n Crunch
40.6	Sugar Frosted Flakes
42.1	Cocoa Pebbles
42.8	Frosted Rice
43.3	Cocoa Krispies
48.4	Fruit Loops
54.0	Apple Jacks
55.5	Sugar Smacks

(Highlights In Home Economics 1980)

Product	Sugar Order On Label
C H B Spaghetti Sauce	3, 7
Hunt's Tomato Sauce	3
Lawry's Salad Dressing Mix (Bacon Flavor)	3
Nabisco 100% Bran Cereal	2
Campbell's Tomato Soup	3
Coffee Mate Non-Dairy Creamer	1
Knott's Berry Farm B-B-Q Sauce	3
Hunt's Ketchup	2
Sweet'N Low	1
Alpha Beta Chocolate Milk	2



A TYPICAL BREAKFAST

Which One Is You?

Sugar Loaded

Sweet Roll
Milk or Coffee

Sugar Frosted Flakes
Milk

Instant Breakfast
Drink

Toast with Butter
and Jelly
Tang

Sugar Low

Eggs and Bacon
Milk

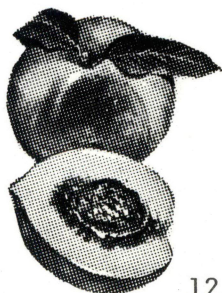
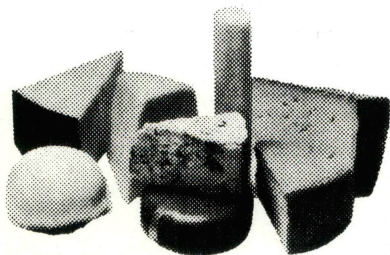
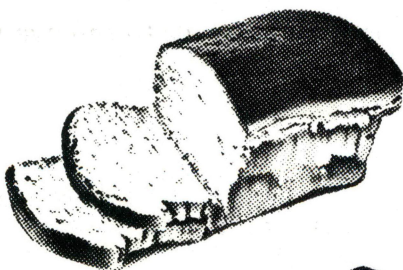
Orange Juice (Unsweetened)
Pancake (1 tablespoon)

Corn Flakes
Milk

Toast with Butter
Banana
Milk

Watch out for the so-called "Nutritious Breakfast."

Read the label!



SUGGESTED FURTHER READINGS AND ACTIVITIES

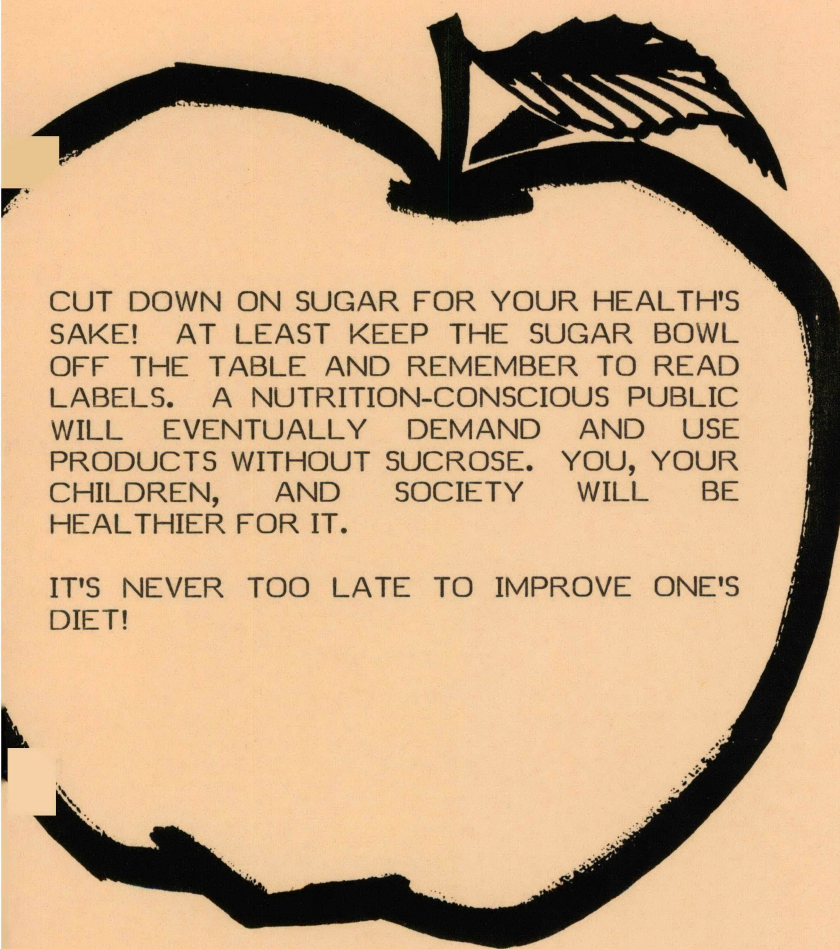
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